DIVISION OF ENVIRONMENT
QUALITY MANAGEMENT PLAN

PART III:

SUPERFUND AND FEDERAL FACILITIES PROGRAM
QUALITY ASSURANCE MANAGEMENT PLAN

Revision 1
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Division of Environment
Bureau of Environmental Remediation
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* Refer to State Cooperative and State Deferral Programs for the Bureau's Standard Operating Procedures (SOP's) used in this Program Plan.

Section 1

INTRODUCTION

1.1 Purpose of Plan

This document presents the quality assurance management plan for the Federal Superfund and Federal Facilities Program. The plan describes the mission, developmental history, organizational structure, environmental monitoring protocols, data handling procedures, and quality assurance (QA) and quality control (QC) requirements of these programs. Standard operating procedures (SOPs) and equipment used in the programs are presented in the Appendix A.

1.2 Plan Revisions

To be effective and useable, this document must be maintained in an up-to-date condition. As required by the Division of Environment Quality Management Plan (Part I, section 7), the contents of the plan are reviewed on at least an annual basis. Minor changes in the report's organizational structure or terminology may be approved by the Section Chief. However, major revisions which substantially change the contents of the document, especially in terms of QA policies or procedures, require the added approval of the Bureau QA Representative, Bureau Director, Division QA Representative and the EPA Region VII QA Manager.

Section 2

DESCRIPTION OF PLAN

2.1 Historical Overview

The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) was passed into law in December 1980 to establish a program to identify sites from which releases of hazardous substances into the environment might occur or have occurred, to ensure that they are cleaned up by responsible parties or the federal government and to evaluate damages to natural resources. The program is commonly known as Superfund. The Superfund Amendments and Reauthorization Act (SARA), signed into law in 1986, extended the tax-based funding for the program for five additional years. Since 1992, the program has been funded through direct appropriations from the federal budget.

The Superfund Unit is responsible for several facets of the State Superfund Program. This responsibility is defined through various cooperative agreements between KDHE and the U. S. Environmental Protection Agency (EPA).

For "state-lead" Superfund sites, the Superfund Program conducts or provides oversight to potentially responsible parties (PRPs) for investigation, cleanup, evaluation and monitoring. Responsible parties provide funding to KDHE for oversight and guidance. The state lead Superfund sites are managed in the Remedial Section. The federal-lead sites are managed in the Assessment and Restoration Section. For "federal-lead" Superfund sites, staff in the Superfund Program provide management assistance to EPA's project managers. The federal-lead portion of the program includes the Management Assistance Cooperative Agreement (MACA) which is a cooperative agreement between EPA and KDHE.

The Superfund Unit includes personnel who work in cooperation with the U.S. Department of Defense (DoD) on current and/or former federal facilities in the state. The agreement is called the Defense/State Memorandum of Agreement (DSMOA). The purpose of the DSMOA is to involve states in the cleanup of Department of Defense installations through the Defense Environmental Restoration Program (DERP). The states are reimbursed for technical services and regulatory guidance provided in support of cleanup activities. This part of the Superfund Program was initiated in 1994.

Additionally, the Superfund Unit conducts site assessment activities of formerly used defense sites (FUDS). The assessments are funded through a grant from the EPA. The assessments are directed at FUDS where the U.S. Army Corps of Engineers is not taking action due to funding or legal constraints.

2.2 Mission and Goals

The State Superfund Program provides personnel management, oversight, and enforcement of remedial activities at Superfund and DoD sites. The mission of the program is to enhance the Superfund and DSMOA process by providing personnel who have expertise and particular knowledge of state laws and regulations, local and regional geology, politics and public concerns.

The goals of the KDHE Superfund Program are defined as follows:

(1) provide a systematic, consistent set of procedures for PRPs, and the DoD and their consultants to investigate and remediate, if appropriate, Superfund and DSMOA sites in Kansas. Guidance is found in the National Contingency Plan and other EPA guidance documents;

(2) ensure public involvement and/or awareness at all levels throughout the Superfund and DSMOA process;

(3) ensure that the EPA guidance documents are followed for the various scopes of work to be performed throughout the corrective action process;

(4) continuously improve our communication, strategies, decisions and work processes with the EPA and DoD to provide the regulated community with consistent guidance and oversight and ensure continued value-added working relationships between EPA, DoD and KDHE.

(5) identify the presence or absence of environmental contamination at FUDS through site assessment activities and make recommendations to EPA and the U.S. Army Corps of Engineers regarding the need for further response actions at the sites.

2.3 Organization and Responsibilities

ORGANIZATIONAL CHART

(See Exhibit 1 in the BER QA Plan Part II)

The Bureau Director's responsibilities are defined in the BER QA management plan presented in Part II of the QMP.

The Section Chief is responsible for supervising the Unit Leader of the Superfund Unit. The operation and implementation of uniform policies and procedures for the Superfund and Federal Facilities Program is the responsibility of the Section Chief. Additionally, the Section Chief is responsible for planning, organizing, supervising and directing the statewide activities of the Superfund and Federal Facilities Program.

The Unit Leader is the Superfund and Federal Facilities Program manager and is responsible to ensure the requirements of the program-level QA management plans and SOPs are implemented in a consistent, timely and reliable manner. Working with the Section Chief, the Unit Leader strives to improve the precision, accuracy and reliability of all environmental data collected and products (reports) generated as part of Superfund and Federal Facilities Program activities through the effective allocation of staff and resources.

The Superfund Unit is composed of Environmental Geologists. The Environmental Geologist I's and II's are the Project Managers. The project managers provide general regulatory oversight of all scientific investigations performed relative to the Superfund Program. Each individual Superfund Program project manager is responsible for many of the following functions:

(1) reviews and evaluates Remedial Investigation/Feasibility Studies (RI/FS), Remedial Design/Remedial Action (RD/RA) plans, Site Investigations, and other environmental investigation work plans and reports for completeness, accuracy and technical
adequacy;

(2) provides technical suggestions to allow for correction of perceived deficiencies in work plans and reports;

(3) administers and assists the EPA and DoD with project management for ground water, surface water and soil remediation sites where ongoing investigation and cleanup are occurring;

(4) evaluates monitoring and general remedial data to ensure that the project is progressing within an acceptable time frame;

(5) reviews or designs ground water quality sampling programs along with the EPA and DoD to assure that the proper evaluation of potential sites is performed;

(6) collects split, duplicate, or collocated environmental samples to ensure the representativeness and general quality of the various samples collected at a site throughout the investigation;

(7) represents KDHE at public meetings and other forums to present information regarding program activities;

(8) prepares initial site screening reports for the FUDS assessment program;

(9) conducts field investigations of FUDS; and

(10) prepares work plans and Site Reconnaissance Evaluation Reports.

For work completed by staff, all site assessments activities must have a Work Plan submitted to and approved by the Unit Leader which meets the objectives and minimum data quality and quantity required of such investigations. All final site assessment and remedial reports must be approved by the Unit Leader before submission to the Section Chief and Bureau Director.

Section 3

QUALITY ASSURANCE / CONTROL POLICY STATEMENT

Project managers follow the guidelines set forth in the National Contingency Plan and other EPA guidance documents for standard operating procedures for administration of quality assurance/quality control for the State Superfund Program. As an element of the review process, the Superfund Program reviews and approves Quality Assurance Project Plans provided by the PRP or DoD, with respect to certain Standard Operating Procedures included in Appendix A. Project managers review each of these site specific Quality Assurance Project Plans to determine compliance with KDHE's SOPs and numerous federal regulatory guidance documents for QA/QC.

Project managers and the Unit Leader possess standard operating procedures for administration of quality assurance/quality control for Superfund, FUDs, and Federal Facilities. Project managers can develop site specific Quality Assurance Project Plans, when appropriate, in accordance with KDHE's SOPs and numerous federal regulatory guidance documents for QA/QC.

Project managers are responsible for environmental sampling, including any split, duplicate, or collocated environmental samples to ensure the representativeness and general quality of the various samples collected at a site throughout the investigation. Project managers are responsible for the collection of environmental samples in the assessment of FUDS. All sampling activities conducted by Superfund and Federal Facilities project managers or technicians follow the following general program guidelines:

(1) The objectives of any investigation shall be determined prior to implementation of data collection activities. This determination shall be accomplished during the planning stage of the project and development of the appropriate Work Plan so that appropriate procedures will be incorporated into the implementation of the project and the resulting data will have a reasonable probability of meeting the stated objectives.

(2) Sample collection and analysis activities and data management activities shall be subjected to periodic evaluation by supervisory personnel to identify and, if necessary, correct deficiencies and enhance the overall quality of the Superfund and Federal Facilities Program.

(3) All data collection activities will be accomplished and documented in accordance with a Divisional QA plan and applicable SOPs, included in Appendix A.

Federal guidance documents frequently referenced for quality assurance/ quality control by Superfund and Federal Facility staff include, but are not limited to:

* A Compendium of Superfund Field Operations Methods (EPA/540/P-87/001, December 1987);

* Data Quality Objectives for Remedial Response Activities (EPA/540/G-87/003, March 1987);

* Guidance for Data Useability in Risk Assessment (EPA/540/G-90/008, October 1990);

* Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (EPA/540/G-89/004, October 1988);

* Handbook of Suggested Practices for the Design and Installation of Ground Water Monitoring Wells. (EPA/600/4-89/034, March 0991);

* RCRA Ground Water Monitoring: Draft Technical Guidance; (CEPA 530-R-001 P893-139-350, November 1992).

* Risk Assessment Guidance for Superfund (EPA/540/1-89/002, December 1989).

* Standard Operating Safety Guides (EPA Publication 9285.1-03/PB92-963414, June 1992);

* Standard Practices for Description and Identification of Soils; (American Society for Testing and Materials Standard D-2488, October 1990);

* Standard Practices for the Design and Installation of Ground Water Monitoring Wells in Aquifers; (American Society for Testing and Materials Standard D-5092, October 1990);

* Standard Practices for Soil Investigation and Sampling by Auger Borings; (American Society for Testing and Materials Standard D-1452, October 1990);

Section 4

QUALITY ASSURANCE / CONTROL CRITERIA AND PROCEDURES

4.1 Field Station Site Selection

The selection of sampling locations is based on several factors including type and purpose of the sample, representativeness, accessibility (permission to sample), location of existing wells, location of potential source areas of contamination and location of potential target areas. Selection criteria vary depending upon the type of medium being sampled and the purpose of the sampling which are described in site-specific Quality Assurance Project Plans (QAPP's).

4.2 Field Equipment Installation

Generally field staff will use non-dedicated sampling equipment that is either disposable or reusable. Sampling equipment designated for reuse must be decontaminated as specified in SOP (BER-05). Some sites as designated by the project manager may have dedicated sampling equipment in place.

4.3 Sampling Types

Program staff primarily provide Quality Assurance/Quality Control management services through the collection of split, duplicate, replicate, and/or collocated environmental samples concurrent with environmental sampling performed by the responsible party or an environmental contractor. In addition, program staff may occasionally be required to collect independent environmental samples or for site reconnaissance work at FUDS.

Ground water is the most frequent environmental media sampled, followed by surface and subsurface soils, surface water, sludge, sediment, and air. In addition, program staff may be required to collect special samples including influent and effluent water samples associated with ground water or surface water remedial systems, or remedial performance samples including potentially hazardous wastes or materials which have been stabilized to facilitate handling and transport or to reduce contaminant mobility.

Program staff collecting Quality Assurance/Quality Control environmental samples adhere to the sample collection procedures specified in the KDHE-approved site-specific sampling plan. KDHE's approval of the site-specific sampling plan is dependent upon the plan's compliance with field methods and sampling procedures provided in the KDHE Appendix 1. Standardized operating procedures (SOPs) developed for program staff include: BER-01 for the collection of ground water samples from monitoring, public or private wells; BER-03 for the collection of soil samples; BER-02 for the collection of surface water samples; BER-04 for the collection of sediment samples; and BER-11, BER-12, and BER-19 for sample control, i.e. identification, transport and chain-of-custody; BER-07 for sampling soils, water and soil gas with the Geoprobe soil gas rig; BER-06 for drilling and installation of soil borings and monitoring wells; BER-20 for hazardous waste sampling; and BER-05 for decontamination of sampling equipment.

4.4 Safety Considerations

Field and laboratory staff that participate in environmental monitoring programs encounter potentially dangerous situations on a frequent basis. In addition to the routine possibility of automobile or equipment accidents, employees may encounter extremely slippery surfaces, toxic or hazardous substances, infectious microorganisms, fire or electrocution hazards, vicious dogs, belligerent persons, or other threatening situations. Injuries or illnesses resulting from such situations may lead to substantial human suffering and, from a QA/QC perspective, deprive programs of the services of a valuable employee for an extended period of time.

Although it is not possible to predict every conceivable risk that may arise during the course of work, supervisors must ensure that those risks faced by staff on a recurring basis are addressed in the SOPs and are discussed during employee training. Field and laboratory staff are expected to abide by the safety protocols contained within the QA management plans and SOPs and to integrate safety considerations into all aspects of their work. Field staff should follow SOPs BER-14, BER-24 and BER-20. BER routinely budgets for ongoing safety training expenses and annual medical physicals for field staff associated with monitoring and/or field inspections of hazardous materials (refer to BER-17).

Project managers are expected to bring potentially unsafe practices or situations to the attention of their Unit Leader. In turn, the Unit Leader shall evaluate the practice or situation and either take the appropriate corrective action or, in complicated circumstances, seek the advice of the Section Chief or higher level supervisor. Major corrective actions warranting changes in an SOP shall be implemented by staff only upon approval of the Section Chief and Bureau Director.

4.5 Requesting Analytical Services

Program staff can employ several approaches for the submission of environmental samples to a laboratory for analyses. Staff can submit environmental samples directly to the Kansas Health and Environmental Laboratory (KHEL) or contract the services of an outside laboratory.

The selected laboratory must have a specific Quality Assurance and Quality Control Plan approved by the Division Director prior to utilization by the Section. Generally, the KHEL will be used for the majority of the program's analytical service. However, the purpose of the contractual arrangements is to provide additional analytical capacity, Quality Assurance and Quality Control (inter-laboratory duplicates) and to provide expanded analytical services.

4.6 Procedures for Assessing Data Precision, Accuracy, Representativeness and Comparability

4.6.1 Ongoing Quality Assurance Review and Special Audits

QA/QC aspects of the State Superfund and Federal Facilities Program are subject to ongoing review by the Unit Leader. Staff are expected to cooperate fully with administrative requests for information on data precision/accuracy and overall QC performance. The Unit Leader is expected to track the QC performance of Project Managers, assist managers in identifying QC deficiencies within their assigned sites, and facilitate the initiation of necessary corrective actions. The Section Chief is expected to track the QC performance of the program, assist the Unit Leader and Project Managers in identifying QC deficiencies within their programs, and facilitate the initiation of necessary corrective actions. The results are reported to the Bureau QA Representative and Bureau Director.

4.6.2 Equipment Calibration and Maintenance

All field equipment must be checked out by staff from the Bureau's Equipment and Supply Technicians. The individual users of field equipment are responsible for the maintenance (in accordance with manufacturer's procedural manuals and/or Standard Operating Procedures) of the equipment while being used in field operations. The user should ensure the equipment is checked for proper operation and is current with calibration requirements (if needed) prior to leaving for the field. The user should record any malfunctions encountered while in the field in the logbook associated with the equipment. The user should make sure the malfunctions are communicated to the Unit Leader and the Bureau's Equipment and Supply Technicians upon return of the equipment to storage so that appropriate action can be initiated to repair the item of equipment, or initiate actions (e.g., prepare a Purchase Requests or Purchase Acquisitions) to have the equipment repaired upon return from the field.

4.6.3 Quality Control Blanks and Spikes

Quality control procedures must be taken by field staff to ensure the integrity of the samples collected. Without checks on the sampling and analytical procedures, the potential exists for contradictory or incorrect results. Procedures describing quality control samples are defined in BER-12 or are included in specific SOPs.

4.7 Corrective Action Procedures

In the context of Quality Assurance (QA), State Superfund and Federal Facility Program corrective actions are procedures that may be implemented on environmental samples that do not meet predetermined QA specifications. In general, the corrective action procedures program addresses the analysis of any cause precipitating a negative audit finding and identifies the appropriate corrective action(s) necessary to address it. Program staff, or the appropriate Quality

Assurance/Quality Control program designee, are responsible for reviewing data validation reports, audit reports and conditions nonconformance reports to identify significant or repetitious adverse to quality, or deficiencies regarding the implementation or adherence to required Quality Assurance practices. In addition, the program staff, or QA/QC designee, is required to investigate the source(s) of the problem and is responsible for defining and/or implementing the necessary actions to remedy the problem.

The quality characteristics of data generated by sampling, monitoring, or analyzing, is defined in the following terms:

> Precision: A measure of mutual agreement among individual measurements of the same property, usually under prescribed similar conditions. Precision is best expressed in terms of the standard deviation. Various measures of precision exist depending on the prescribed similar conditions.
>
> Completeness: A measure of the amount of valid data obtained from a measurement system, compared with the amount needed to obtain the project data quality objectives.
>
> Representativeness: The degree to which data accurately and precisely represents a characteristic of the population, the parameter variations at a sampling point, a process condition, or an environmental condition. It also includes how well the sampling point represents the parameter variations that are under study.
>
> Comparability: The confidence with which one data set can be compared with another; a qualitative characteristic that must be assured in terms of sampling, analysis, reporting, etc.

The exact values of the quality characteristics will vary depending upon the analytical processes and procedures employed. Site-specific work plans will detail the recommended field activities and analytical methodologies necessary to establish the appropriate data quality characteristics. Corrective actions may include re-sampling, re-analyzing samples, or auditing laboratory procedures.

4.8 Data Management

All work plans submitted in association with the State Superfund and Federal Facility Program require a data management system. The system should include field logs, sample management and tracking procedures, and document control and inventory procedures for both laboratory data and field measurements. The system should ensure the data collected during the investigation are of adequate quality and quantity to support the findings of the investigation, risk assessment (if performed), and corrective action research.

For each measurement, the data reduction scheme planned for collected data, including all equations used to calculate the concentration or value of the measured parameter, should be described. The principal criteria employed to validate the integrity of the data during collection and reporting should be referenced.

All data collected should be validated by the appropriate level of laboratory quality control to ascertain whether it is appropriate for its intended use. All task management and quality controls implemented shall be documented within the appropriate report appendix.

4.9 Quality Assurance/Control Reporting Procedures

All reports or deliverables submitted through the State Superfund and Federal Facility Program require a Quality Assurance/Quality Control status summary of the project and any conditions adverse to the quality. The report should contain an assessment of measurement data accuracy, precision and completeness, results of any performance audits, results of system audits, any reported non-conformance, and any Quality Assurance problems, together with recommended solutions or corrective actions.